Participant Questionnaire

		10
Participant	number:	12

Date: 7/3/2023

Location: Bresia, IT

HRC Study / Algorithms tested: HAMP, STAP-PPE

Study Conducted by: Tared Flowers

Participant link lengths/dimensions: (meters, "spine" is pelvis to shoulder midpoint, "shoulders" is shoulder to shoulder)

Spine	
Neck	
Shoulders	.30

Left Upper Arm	-29
Left Forearm	.25

Right Upper Arm	.29
Right Forearm	.260

Participant joint diameter: (meters)

Left Elbow	-095
Left Wrist	.06

Right Elbow	.09
Right Wrist	.06

Questions:

- A. How safe did you feel? (0 is not safe at all, 5 is neutral, 10 is very safe)
- B. Do you think the robot hindered your motions during the task? (0 is robot completely prevented your motions, 5 is neutral, 10 is robot did not impede you motion)
- C. Did the robot perform logical motions? (0 is robot motions made no sense to you, 5 is neutral, 10 is robot motions made sense to you)
- D. What is your overall satisfaction with the HRC task? (0 is you would not work in this HRC cell again, 5 is neutral, 10 is you enjoyed working in this cell with the robot)

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For Task 1 (engine parts): (circle your answer to each question)

Task 1, Me	thod 1:	- 160						7 0	more against the said.	-
Question /	A: (0 is not	safe at all, !	5 is neutral	, 10 is very	safe)					
0	1	2	3	4	5	6	7	*	9	10
Question	B: (0 is rob	ot complete	ly prevent	ed your mo	otions, 5 is r	neutral, 10	is robot did	not imped	e you motic	on)
0	1	2	3	4	5	6	7	8	X	10
Question	C: (0 is rob	ot motions	made no se	ense to you	ı, 5 is neutra	al, 10 is rol	oot motions	made sens	se to you)	
0	1	2	3	4	×	6	7	8	9	10
Question D	: (0 is you w	ould not wo	rk in this HR	C cell again,	, 5 is neutral,	10 is you e	njoyed worki	ng in this ce	ll with the ro	bot)
0	1	2	3	4	5	6	X	8	9	10

Task 1, M	ethod 2:								- A	3
Question	A: (0 is not	safe at all,	5 is neutral	, 10 is very	safe)	1 1 8 1 5 7 5 7	,52) =v=1			
0	1	2	3	4	5	>	7	8	9	10
Question	B: (0 is robo	ot complete	ely prevent	ed your mo	tions, 5 is	neutral, 10 i	s robot did	not impede	e you motic	on)
0	1	2	3	4	5	6	7	×	9	10
Question	C: (0 is robo	ot motions	made no se	ense to you	, 5 is neutr	al, 10 is rob	ot motions	s made sens	e to you)	
0	1	2	3	×	5	6	7	8	9	10
Question [): (0 is you w	ould not wo	rk in this HF	RC cell again,	5 is neutral	l, 10 is you er	ijoyed work	ing in this cel	l with the ro	bot)
0	1	2	3	4	5	6	×	8	9	10

Task 1, Me	thod 3:						20			7	
Question /	A: (0 is not	safe at all, !	is neutral	, 10 is very	safe)	1	* 1				
0	1	2	3	4	5	6	7	X	9	10	
Question B: (0 is robot completely prevented your motions, 5 is neutral, 10 is robot did not impede you motion)											
0	1	2	3	4	5	6	7	8	>	10	
Question (C: (0 is rob	ot motions	made no se	ense to you	, 5 is neutr	al, 10 is rob	ot motions	made sens	e to you)		
Q	1	2	3	4	5	X	7	8	9	10	
Question D	Question D: (0 is you would not work in this HRC cell again, 5 is neutral, 10 is you enjoyed working in this cell with the robot)										
0	1	2	3	4	5	6	7	X	9	10	

Experience: 4 Comments: First task:

- I didn't quite get why the robot Kept stopping even when the human wasn't that close
- In method 2 and 3 I could not understand the reason behind some re-orientations of the end-effector (maybe expected when planning in the joint-space?)

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For Task 2 (Sharework parts: metal tabs, cylinders, pallets): (circle your answer to each question)

Task 2, M	ethod 1:									1
Question	A: (0 is not	safe at all,	5 is neutral	, 10 is very	safe)					•
0	1	2	3	4	5	6	7	8	×	10
Question	B: (0 is robo	ot complete	ely prevent	ed your mo	tions, 5 is	neutral, 10 i	s robot did	not imped	e you motic	on)
0	1	2	3	4	5	6	7	8	*	10
Question	C: (0 is robo	ot motions	made no se	ense to you	, 5 is neutr	al, 10 is rob	ot motions	made sens	e to you)	
0	1	2	3	4	5	X	7	8	9	10
Question D: (0 is you would not work in this HRC cell again, 5 is neutral, 10 is you enjoyed working in this cell with the robot)										
0	1	2	3	4	5	\nearrow	7	8	9	10

Task 2, M	ethod 2:		and the same of th	347		181				3
Question	A: (0 is not	safe at all,	5 is neutral	, 10 is very	safe)	ä	п			
0	1	2	3	4	5	6	7	8		10
Question	B: (0 is rob	ot complete	ely prevente	ed your mo	tions, 5 is r	neutral, 10 i	s robot did	not impede	e you motio	on)
0	1	2	3	4	5	6	7	8	9	20
Question	C: (0 is rob	ot motions	made no se	ense to you	, 5 is neutra	al, 10 is rob	ot motions	made sens	e to you)	•
0	1	2	3	4	5	6	7	8	>	10
Question D	Question D: (0 is you would not work in this HRC cell again, 5 is neutral, 10 is you enjoyed working in this cell with the robot)									
0	1	2	3	4	5	6	7	X	9	10

Task 2, M	ethod 3:			3						Z	
Question	A: (0 is not	safe at all,	5 is neutra	l, 10 is very	safe)			= 3%			
0	1	2	3	4	5	×	7	8	9	10	
Question	B: (0 is rob	ot complete	ely prevent	ed your mo	tions, 5 is r	neutral, 10 i	s robot did	not impede	e you motio	on)	
0	1	2	3	4	5	6	7	\geq	9	10	
Question	C: (0 is rob	ot motions	made no s	ense to you	, 5 is neutr	al, 10 is rob	ot motions	made sens	e to you)		
0	1	2	3	×	5	6	7	8	9	10	
Question D	Question D: (0 is you would not work in this HRC cell again, 5 is neutral, 10 is you enjoyed working in this cell with the robot)										
0	1 1	2	3	4	>	6	7	8	9	10	

Comments: $T2-m4: A_{5}, B_{5}, C_{9}, D_{87}$ $T2-m5: A_{5}, B_{6}, C_{8}, D_{7}$

In some cases, it seemed to me that the reaction to the human motion was somewhat laggy. Maybe is it hard for the estimation algorithm to Keep up with with robot motions?

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